Title	**Install, wire to, and connect a machine safety device**		
Level	**4**	**Credits**	**2**

Purpose	This unit standard covers wiring and connection of a machine safety device to a safety controller or a safety PLC. It is intended for people wishing to qualify as electricians predominantly in the industrial sector. People credited with this unit standard are able to: – under supervision establish and report on the suitability of a selected machine safety device; and – install, wire, and commission a machine safety device to a safety controller, monitored safety relay, or a safety PLC.

Classification	Electrical Engineering > Electrical Installation and Maintenance

Available grade	Achieved

Guidance Information

1 This unit standard has been developed for learning and assessment on-job.

2 Definitions
PLC – programmable logic controller.
Safe and sound practice – as it relates to the installation of electrical equipment is defined in AS/NZS 3000:2007, *Electrical Installations (known as the Australian/New Zealand Wiring Rules)*.

3 Range
a Safety devices may include but are not limited to – emergency stop, light curtain, guard switch, rope pull switch, zero speed detection, light grid, light beams and scanners, gate latching devices. Evidence of two different safety devices is required.
b Candidates may refer to current legislation and Standards during assessment.
c Demonstration of safe working practices and installation in accordance with *safe and sound practice* are essential components of assessment of this unit standard.

d All activities and evidence presented for all outcomes and performance criteria in this unit standard must be in accordance with:
- i legislation;
- ii policies and procedures;
- iii ethical codes;
- iv Standards – may include but are not limited to those listed in Schedule 2 of the Electricity (Safety) Regulations 2010;
- v applicable site, enterprise, and industry practice; and,
- vi where appropriate, manufacturers' instructions, specifications, and data sheets.

Outcomes and performance criteria

Outcome 1

Under supervision establish and report on the suitability of a selected machine safety device.

Performance criteria

1.1 Demonstrate knowledge of the risk assessment process and obtain a risk assessment.

1.2 Design and draw the safety circuit showing the safety infrastructure and its redundancy to achieve the category of protection required in accordance with the risk analysis.

1.3 Ensure that the selected machine safety device, to a safety controller or a safety PLC, meets the electrical and environmental requirements based on specifications and client requirements.

1.4 Prepare a report on the suitability of the selected components.

Outcome 2

Install, wire, and commission a machine safety device to a safety controller, monitored safety relay, or a safety PLC.

Performance criteria

2.1 Install, wire, and connect safety equipment as outlined in drawings developed in performance criterion 1.2.

2.2 Connect a machine safety device to a safety controller or a safety PLC.

2.3 Connect and carry out functional and safety tests to ensure any test equipment used will not compromise the safety devices selected for the job and prepare test report.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	21 July 2016	31 December 2027
Review	2	24 March 2022	31 December 2027
Rollover and Revision	3	25 May 2023	31 December 2027

Consent and Moderation Requirements (CMR) reference	0003

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