

Title	Diagnose and repair faulty electronic security systems		
Level	4	Credits	20

Purpose	<p>This unit standard is intended for the training and assessment of people working in or intending to work in the electronic security industry and covers the diagnosis and repair of electronic security systems.</p> <p>People credited with this unit are able to:</p> <ul style="list-style-type: none"> – prepare to diagnose and repair electronic security systems; – diagnose faults in electronic security systems; – repair and test equipment; and – complete post-repair procedures.
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Classification	Electronic Engineering > Electronic Security
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Available grade	Achieved
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Guidance Information

- 1 This unit standard has been developed for learning and assessment on-job.
- 2 It is recommended that people seeking credit for this unit standard hold prior credit for Unit 31602, *Demonstrate knowledge of electronic security fault location and diagnostics*, or can demonstrate equivalent knowledge and skills.
- 3 Persons working or intending to work as a security officer or in related security employment may require a Security Guards Licence or, if an employee of a Security Guard Licence holder, a Certificate of Approval to be the Responsible Employee of a Security Guard. These licences are issued by the Private Security Personnel Licensing Authority available through: www.justice.govt.nz/tribunals/licences-certificates/pspla/.
- 4 References
 Building Act 2004;
 Electricity Act 1992;
 Electricity (Safety) Regulations 2010;
 Health and Safety at Work Act 2015 and associated regulations;
 Private Security Personnel and Private Investigators Act 2010;
 Privacy Act 1993;
 Telecommunications Act 2001;
 AS 2201.3:1991, *Intruder alarm systems, detection devices for internal use*;
 AS 2201.4:1990, *Intruder alarm systems – Wire-free systems installed in client's premises*;

AS/NZS 2201.1:2007, *Intruder alarm systems – Client's premises—Design, installation, commissioning and maintenance*;
AS/NZS 2201.5:2008, *Intruder alarm systems – Alarm transmission systems*;
AS/NZS 3000:2007, *Electrical installations (known as the Australian/New Zealand Wiring Rules)*;
New Zealand Security Association (Inc), Codes of Practice available at <https://security.org.nz/>;
New Zealand Telecommunications Forum Incorporated cabling requirements;
Local territorial authority requirements;
and all subsequent amendments and replacements.

5 Definitions

Industry practice – practice used and recommended by organisations involved in the electrotechnology industry.

Component – any device, module, part, or sub-system of any security system.

Module – bus connected system component

Safe working practices – work practices designed to prevent personal injuries and damage to equipment and plant. This includes practices relating to personal attire and use of safety clothing and equipment, use of machinery and tools, and handling of materials and waste.

6 Range

a Candidates must refer to current legislation and Standards during assessment.

b Demonstration of safe working practices in accordance with *safe and sound practice* are essential components of assessment of this unit standard.

c 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;

v applicable site, enterprise, and industry practice; and,

vi where appropriate, manufacturer instructions, specifications, and data sheets.

d The type of diagnosis and repair work required to achieve this unit standard must include:

i diagnosis and repair of equipment to module and component level;

ii use of test instruments to identify faults, measure and adjust equipment, and confirm proper performance. Typical instruments include multimeters, signal generators, and signal tracers. More specialised instruments may be required depending on the nature of the equipment.

e All diagnostic and repair work must be completed within an *industry acceptable timeframe*, that is, the length of time within which a competent person at this level could reasonably be expected to perform the task. In the electronics service industry, time is a significant factor in judging competence. Assessors must therefore ensure that the time taken is representative of industry expectations for the type of work.

f Candidates are expected to meet the outcomes of this unit standard without direct technical supervision, and with complete responsibility for quality and quantity of output.

g Electrical, radiation, and workshop or laboratory safety practices are to be observed at all times.

h Evidence is required of at least 10 repairs covering a range of different types of

electronic security devices. The number and type of equipment chosen is left to the discretion of the assessor, but must be sufficient to assess competence in all outcomes of the unit standard.

Outcomes and performance criteria

Outcome 1

Prepare to diagnose and repair electronic security systems.

Performance criteria

- 1.1 Identify, verify, and record fault symptoms.
- 1.2 Identify and agree upon cost of repair and turn around time expectations.
- 1.3 Identify any site-specific safety and health implications, and required hazard control measures.
- 1.4 Ensure that service information is available before the commencement of repair.

Range may include but is not limited to – manuals, schematic diagrams, modification sheets, fault and service guides.
- 1.5 Explain repair requirements to supervised persons and any other trades.

Range may include but is not limited to – methodology, timeframes, health and safety, customer expectations, waste management, workflow, team roles, tool box meetings, tailgate meeting.

Outcome 2

Diagnose faults in electronic security systems.

Performance criteria

- 2.1 Use diagnostic techniques, tools, test instruments, and servicing data to identify fault cause and faulty modules and/or component.
- 2.2 Determine repair versus replacement with respect to agreed cost and repair reliability.
- 2.3 Ensure that diagnostic and repair processes do not damage equipment.
- 2.4 Present findings to customer and obtain approval to repair.

Outcome 3

Repair and test equipment.

Performance criteria

- 3.1 Repair or replace faulty modules and components in accordance with service information.
- 3.2 Reassemble the system in a manner that prevents damage and conforms to the manufacturer layout.
- Range layout may include but is not limited to – lead dress, screw location, shields and screens, board positioning and securing, cover positioning and fastening.
- 3.3 Test to confirm that the repaired equipment is ready for service.
- Range electrical safety, operation.

Outcome 4

Complete post-repair procedures.

Performance criteria

- 4.1 Prepare fault repair documentation in accordance with industry practice.
- Range may include but not limited to – workshop register, job card, invoice, order forms, warranty forms, fault manuals, fault database, instructions to customer.
- 4.2 Remove all traces of servicing and repair work from equipment, and in the case of on-site repairs, leave the premises in their original state of cleanliness and tidiness in line with client expectations.
- 4.3 Provide feedback to staff and management on project and performance of supervised staff.

Planned review date	31 December 2023
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	24 January 2019	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.