

Title	Carry out commissioning and maintenance tests on single and multiple input protection systems		
Level	5	Credits	6

Purpose	People credited with this unit standard are able to carry out commissioning and maintenance tests on single and multiple input protection systems.
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Classification	Electricity Supply > Electricity Supply - Testing
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Available grade	Achieved
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Prerequisites	Unit 14287, <i>Use and maintain test instruments used in the high voltage electricity supply industry</i> , or demonstrate equivalent knowledge or skills.
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Guidance Information

- 1 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable legislative and industry requirements.
- 2 Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the current version of the Health and Safety at Work Act 2015; and any subsequent amendments and replacements; Electricity Act 1992; Electricity (Safety) Regulations 2010; Electricity supply industry codes of practice and documented enterprise procedures, including *Safety Manual – Electricity Industry* (SM-EI) (2015) Wellington: Electricity Engineers' Association, available at www.eea.co.nz.
- 3 Definitions
Asset owner refers to a participant who owns or operates assets used for generating or conveying electricity.
Industry requirements include all asset owner requirements; manufacturers' specifications; and enterprise requirements, which may include the documented workplace policies, procedures, specifications, business, and quality management requirements relevant to the workplace in which assessment is carried out.
- 4 Testing is normally initially applied in a test laboratory situation and maintenance normally takes place at electricity supply substations. This unit standard does not cover distance protection.

- 5 Tests include – differential, power, phase displacements, synchronising, directional earth faults, inverse, definite time, electronic and electro-mechanical relays, performance characteristics, pick-up, drop-off, polar plots.

Outcomes and performance criteria

Outcome 1

Carry out commissioning and maintenance tests on single and multiple input protection systems.

Range evidence of five tests is required.

Performance criteria

- 1.1 The relevant specifications, requirements and performance standards are used to prepare a commissioning or test plan.

Range technical specifications and logic schematic diagrams for system, test specifications and performance standards for protection system relays, test circuit, inspection, and data acquisition monitoring requirements.

- 1.2 The extent of main equipment to be released from service is identified and an equipment release is requested for work access.

- 1.3 Test equipment is correctly assembled to be ready for testing, and reference material is made available.

Range monitoring equipment, calibration, commissioning or test plan, test, inspection, and monitoring procedures, hazard identification, safety measures.

- 1.4 The tests are carried out using the selected procedures and commissioning plan, and the results are recorded in the required format.

- 1.5 Documented results are interpreted for compliance or non-compliance, and documentation is completed for each unit tested.

Range includes – noting acceptable results on the test sheet, repeating tests with unacceptable results;
may include – adjustments to the protection system settings and retesting.

- 1.6 The equipment is returned to service.

Range removal of temporary testing and monitoring equipment circuitry, settings on protection relays, authorisation.

- 1.7 The network protection system is switched into service without incident.

Planned review date	31 December 2025
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	27 April 1998	31 December 2012
Revision	2	11 February 2004	31 December 2012
Review	3	19 May 2006	31 December 2012
Review	4	08 December 2011	31 December 2022
Review	5	23 April 2020	N/A

Consent and Moderation Requirements (CMR) reference	0120
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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 Connexis – Infrastructure Industry Training Organisation
qualifications@connexis.org.nz if you wish to suggest changes to the content of this unit standard.