Title	**Describe and carry out polarity and phasing tests on low voltage electricity networks**		
Level	**3**	**Credits**	**2**

Purpose	People credited with this unit standard are able, on low voltage electricity networks, to: describe and carry out polarity tests and connections; and describe and carry out phasing tests.

Classification	Electricity Supply > Electricity Supply - Core Skills

Available grade	Achieved

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; Electricity Act 1992; Electricity (Safety) Regulations 2010; and any subsequent amendments and replacements; Electricity supply industry codes of practice and documented enterprise procedures, including *Safety Manual – Electricity Industry* (SM-EI) (2015), 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.

Outcomes and performance criteria

Outcome1

Describe and carry out polarity tests and connections on low voltage electricity networks.

Performance criteria

1.1 Polarity terms are described.

Range low voltage, naming of conductors, conductor identification and colours, neutral conductors, live conductors.

1.2 Reasons for correct supply polarity in low voltage systems are described.

Range safety (to life and property), prevention of risk of exposure to shock and fire damage, live conductors to be switched, neutral conductors at ‘O’ or earth potential, commissioning and re-commissioning of equipment.

1.3 The effects of incorrect polarity, high impedance neutral and open circuit neutral in a low voltage installation are described.

Range phase – neutral reversal, voltage to remote earth, rise of earth potential, fluctuations in supply, voltage with change of load.

1.4 Polarity tests are carried out on low voltage electricity networks.

Range voltage measurement to a remote earth, measurement of current in phase, neutral and earthing lead conductors, continuity measurements to identify conductors.

1.5 Changing polarity connections is demonstrated.

Outcome 2

Describe and carry out phasing tests on low voltage electricity networks.

Performance criteria

2.1 Phasing terms are described.

Range includes but is not limited to – vector grouping of transformers, phase marking and identification of conductors (R, W, B, A, B, C).

2.2 Purpose of phasing checks is described.

Range paralleling supplies and transformers, reconnection of conductors (cables and overhead) after repair, commissioning new equipment and re-commissioning after repair, phase rotation of supplies.

2.3 Phasing tests are carried out on low voltage electricity networks.

Range use of voltmeter, continuity tests, recording of voltage readings following ‘prove-test-prove’ technique.

Replacement information	This unit standard and unit standard 23899 replaced unit standard 18029.

Planned review date	31 December 2025

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 October 2007	31 December 2019
Revision	2	15 September 2011	31 December 2022
Review	3	27 February 2020	N/A
Revision	4	28 January 2021	N/A

Consent and Moderation Requirements (CMR) reference	0120

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.