



Australian Government

UEEEL0050 Install and replace low voltage current transformer metering

Release: 2

UEEEL0050 Install and replace low voltage current transformer metering

Modification History

Release 2. Minor Change. Typographic error in prerequisites corrected.

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to install and replace of low voltage (LV) current transformer (CT) metering.

It includes preparing, installing and replacing LV CT metering. It also includes setting meter parameters and completing documentation.

The skills and knowledge described in this unit require a licence or permit to practice in the workplace where work is carried out on electrical installations which are designed to operate at voltages greater than 50 volt (V) alternating current (a.c.) or 120 V direct current (d.c.).

Competency development activities in this unit are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, a relevant contract of training, such as an Australian Apprenticeship, may be required.

Additional and/or other conditions may apply in some jurisdictions subject to regulations related to electrical work. Practice in the workplace and during training is also subject to work health and safety (WHS)/occupational health and safety (OHS) regulations.

Pre-requisite Unit

Note: Those holding an 'Unrestricted Electrician's Licence' or equivalent issued in an Australian state or territory meet the prerequisite requirements of this unit.

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0020 Fix and secure electrotechnology equipment

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEECD0016 Document and apply measures to control WHS risks associated with electrotechnology work

UEEEL0003 Arrange circuits, control and protection for general electrical installations

UEEEL0020 Solve problems in low voltage a.c. circuits

UEEEL0039 Design, install and verify compliance and functionality of general electrical

installations

UEEEL0023 Terminate cables, cords and accessories for low voltage circuits

UEEEL0018 Select wiring systems and cables for low voltage general electrical installations

UEEEL0005 Develop and connect electrical control circuits

UEEEL0019 Solve problems in direct current (d.c.) machines

UEEEL0021 Solve problems in electromagnetic devices

UEEEL0014 Isolate, test and troubleshoot low voltage electrical circuits

UEEEL0008 Evaluate and modify low voltage heating equipment and controls

UEEEL0009 Evaluate and modify low voltage lighting circuits, equipment and controls

UEEEL0010 Evaluate and modify low voltage socket outlets circuits

UEEEL0024 Test and connect alternating current (a.c.) rotating machines

UEEEL0025 Test and connect transformers

UEEEL0012 Install low voltage wiring, appliances, switchgear and associated accessories
and

UEECD0043 Solve problems in direct current circuits

or

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

Competency Field

Electrical

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to install and replace LV CT metering

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 WHS/OHS requirements and workplace procedures for a given work area are identified and applied

1.2 WHS/OHS hazards are identified, risks are assessed,

- and control measures are implemented for work preparation
- 1.3 WHS/OHS hazards not previously identified are noted, risks assessed and risk control measures implemented
 - 1.4 Switchboard on which the meter/s and CTs are to be installed, inspected and tested are evaluated for compliance with safety and relevant industry standards
 - 1.5 Further work instructions for safety and/or functionality defects of the switchboard are sought from appropriate person/s in accordance with workplace procedures
 - 1.6 Installation of the meter, sequence and rectification work is prepared in consultation with relevant person/s
 - 1.7 Material needed for the work is obtained in accordance with workplace procedures and checked against work requirements
 - 1.8 Tools, equipment and testing devices needed for work are obtained in accordance with workplace procedures and checked for correct operation and safety
- 2 Install and replace CT metering**
- 2.1 WHS/OHS risk control measures and workplace procedures for carrying out the work are followed
 - 2.2 Need to test and measure live electrical work is determined in accordance with WHS/OHS requirements and workplace procedures
 - 2.3 Existing metering is checked and isolated in accordance with WHS/OHS requirements and workplace procedures
 - 2.4 Approved rectification work is carried out to comply with relevant industry standards and workplace procedures
 - 2.5 Meters and CTs are installed and replaced to comply with relevant industry standards and work specifications
 - 2.6 Metering power, functional requirements and communication connections, as required, are in accordance with manufacturer specifications and relevant industry standards
 - 2.7 Meter operating parameters and functional requirements are in accordance with manufacturer specifications and

		relevant industry standards
	2.8	Unplanned situations are responded to in accordance with workplace procedures and with the approval of an authorised person in a manner that minimises risk to personnel and equipment
	2.9	Quality checks of the installed apparatus are undertaken in accordance with workplace procedures
	2.10	Metering and CT installation is carried out efficiently without unnecessary waste of materials, services, damage to apparatus, circuits or environment using sustainable energy principles
3	Complete and report metering installation activities	
	3.1	WHS/OHS work completion risk control measures and procedures are followed and supply is reinstated to the installation in accordance with workplace procedures
	3.2	Worksite is cleaned and made safe in accordance with workplace procedures
	3.3	Quality checks of the installed metering and CTs is in accordance with relevant industry standards
	3.4	Metering and CT work is documented and appropriate person/s notified in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Installing and replacing LV CT must include at least two of the following different installations:

- LV CT installation using single phase meters
- LV CT installation using a polyphase meter
- metering installation where compliance rectification work is required

Unit Mapping Information

This unit replaces and is equivalent to UEENEEG076A Install and replace low voltage current transformer metering.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

Assessment Requirements for UEEEL0050 Install and replace low voltage current transformer metering

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least one occasion and include:

- inspecting and evaluating safety and functionality compliance of the switchboard accurately
- following established procedures to obtain approval to rectify non-compliance aspects of the switchboard
- carrying out preparation work effectively
- rectifying compliance defects
- placing and securing metering correctly
- making power and communications connections in accordance with manufacturer specifications and functional and regulatory requirements
- setting meter parameters in accordance with manufacture's specifications and functional and regulatory requirements
- reinstating supply to the installation safely
- documenting current transformer (CT) metering and rectification work and notifying appropriate persons in accordance with established procedures
- dealing with unplanned events
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including using risk control measures
- applying sustainable energy practices
- completing activities
- following quality, workplace procedures and instructions
- preparing, installing and replacing CT energy metering
- selecting metering and CT components
- using tools, equipment, personal protective equipment (PPE) and testing devices
- reporting work activities.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of

the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- low voltage (LV) CT metering, including:
 - CTs encompassing:
 - uses and functions
 - AS 60044.1-2007 Instrument transformers - Current transformers, requirements
 - characteristics and saturation
 - differences between metering and protection CTs
 - standard ratios and outputs
 - accurate range of loading
 - thermal current limit
 - burden and connecting cable length
 - short circuiting secondary as a safety issue
 - accuracy class
 - revenue meter types used with CTs:
 - CT installations encompassing:
 - uses in the regulated market and relevant regulations
 - types and mounting methods
 - switchboard layouts (various distributors)
 - minimum spacing of CTs
 - connections to single and polyphase revenue meters
 - consequence of polarity reversal in one phase of a polyphase meter
- problem-solving techniques
- relevant industry standards
- relevant quality workplace procedures
- relevant tools, equipment and testing devices
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications and operating instructions
- relevant sustainable energy practices
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies, procedures and instructions.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in similar workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated similar workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, tools, facilities, equipment and PPE currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>