



Australian Government

UEEAS0009 Mount and wire control panel equipment

Release: 2

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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 mount and wire control panel equipment.

It includes working safely, following layout and circuit diagrams, selecting and mounting equipment, installing and terminating wiring, functional testing and completing necessary documentation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite 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

UEEEL0003 Arrange circuits, control and protection for general electrical installations

UEEEL0020 Solve problems in low voltage a.c. circuits

UEEEL0023 Terminate cables, cords and accessories for low voltage circuits

UEEEL0005 Develop and connect electrical control circuits

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

UEEEL0021 Solve problems in magnetic and electromagnetic devices

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

UEEEL0025 Test and connect transformers

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

Assembly

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan to mount and wire control panel equipment

PERFORMANCE CRITERIA

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

1.1 Wire control panel equipment installation is determined and planned in accordance with job specifications, wiring and schematic diagrams

1.2 Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures for a given work area are identified and applied

1.3 Work instructions, including layout and wiring diagrams, are applied in accordance with workplace procedures

1.4 Advice is sought from supervisor to ensure work is coordinated effectively with others

1.5 Materials required for the control panel work are obtained in accordance with workplace procedures

1.6 Tools, equipment and measuring devices required to carry out control panel work are obtained and checked for correct operation and safety in accordance with workplace procedures

2 Mount and wire control panel equipment

2.1 Control panel equipment and electrical hazards are identified, risks assessed and control measures implemented

2.2 Circuits are checked and isolated in accordance with WHS/OHS workplace requirements and procedures

2.3 Components are laid out in accordance with job specifications, wiring and schematic diagrams

- 2.4 Control panel components including switch gear, interconnecting plugs and sockets and earthing are fitted in accordance with work instructions, industry standards, manufacturer specifications and workplace procedures
 - 2.5 Control panel wiring is installed in accordance with wiring and schematic diagrams, work instructions, industry standards, manufacturer specifications and workplace procedures
 - 2.6 Regular quality checks are carried out in accordance with workplace procedures
 - 2.7 Completed control panel is visually inspected and tested in accordance with workplace procedures, industry standards and manufacturer specifications
 - 2.8 Labelling and cable numbering are undertaken in accordance with industry standards, wiring and schematic diagrams
 - 2.9 Unplanned events are referred to supervisor for directions in accordance with workplace procedures
 - 2.10 Work is carried out without waste of materials or damage to apparatus, the surrounding environment or services and using sustainable energy practices
- 3 **Finalise and inspect control panel installation**
 - 3.1 Assembled control panel is tested against work instructions, industry standards and manufacturer specifications in accordance with workplace procedures
 - 3.2 Problem-solving techniques are used, where corrective actions to assembled components are required, in accordance with regulatory requirements and industry standards
 - 3.3 Work completion is documented and relevant 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.

Assembling must include at least two different control panels including the following:

- controls for more than two electrical machines, electro-mechanical and/or electronic control and devices such as relays, timers, logic controllers, indicators and switches/push buttons

Unit Mapping Information

This unit replaces and is equivalent to UEENEEA113A Mount and wire control panel equipment.

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 UEEAS0009 Mount and wire control panel equipment

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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 two separate occasions and include:

- applying labelling and numbering to cables and using terminal numbering in accordance with relevant industry standards and workplace procedures
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures and practices, including using risk control measures
- applying sustainable energy principles and practices
- dealing with unplanned events in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- following layout and wiring diagrams
- inspecting and checking installation of control panel equipment
- laying out components, including:
 - selecting and placing switchgear and control gear in accordance with industry standards, wiring and schematic diagrams, including low voltage (LV) and extra-low voltage (ELV) devices
 - segregating of cables at different voltages in accordance with relevant industry standards
 - interconnecting plugs and sockets
- mounting and wiring control panel equipment in accordance with relevant industry standards
- selecting switchgear and control gear to required specifications, including voltage ratings, current ratings and overload settings
- using problem-solving techniques when determining the nature of a fault.

Knowledge Evidence

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

- control panel types and mounting techniques, including:
 - clearances

- DIN mounted switchgear
- direct mounting on insulated panels
- metallic and non-metallic (insulated)
- rear connections
- strapped harness wiring and use of duct to support and channel wiring
- cable labelling and numbering, including:
 - cable and component labelling/identification
 - use of terminal strips to assist fault finding
- component layout, including:
 - interconnecting plugs and sockets
 - placement/layout of power and control circuit devices and components
 - segregation of cables at different voltages
 - wiring and schematic diagrams
- choice of switchgear and control gear, including:
 - current ratings
 - number of operations
 - overload and fuse settings
 - voltage ratings
- other considerations, including:
 - earthing of panels
 - effect of high current devices on electromagnetic components or programmable logic controllers (PLC)
 - effects of electronic components on other devices
 - size of power and control circuit conductors
- relevant industry standards
- problem solving techniques including quality checks
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures
- risk mitigation processes.

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 workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated 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 other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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