



Australian Government

MEM12002 Perform electrical/electronic measurement

Release: 1

MEM12002 Perform electrical/electronic measurement

Modification History

Release 1. Supersedes and is equivalent to MEM12002B Perform electrical/electronic measurement

Application

This unit of competency defines the skills and knowledge required to use basic electro-measuring devices to check variables and applies to the measurement of voltage, current, resistance, power and frequency on a.c. and d.c. circuits up to 1000 volts.

Measurement skills for specific applications and context are covered by other units.

Where interpretation of technical drawings is required unit MEM09002 Interpret technical drawing should also be selected.

Where simple measurement tasks such as reading of fixed devices, testing continuity, and tasks requiring the use of devices mounted in for example measuring jigs unit MEM12001 Use comparison and basic measuring devices and unit MEM12023 Perform engineering measurements, should also be selected as appropriate.

Where electrical/electronic measuring devices require the connection or disconnection of circuitry appropriate units should also be selected.

In circumstances where the application of this unit or legislation dictates, relevant units covering first aid and/or emergency procedures should also be considered.

Some jurisdictions may require the holder of this unit to be licensed or certified and users should check with the relevant authorities.

Band: A

Unit Weight: 2

Pre-requisite Unit

MEM11011	Undertake manual handling
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

Competency Field

Measurement

Elements and Performance Criteria

Elements describe the essential outcomes.

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

1	Determine job requirements	1.1	Follow standard operating procedures (SOPs)
		1.2	Comply with work health and safety (WHS) requirements at all times
		1.3	Use appropriate personal protective equipment (PPE) in accordance with SOPs
		1.4	Identify job requirements from specifications, sketches, job sheets or work instructions
2	Use electro-measuring devices to measure variables	2.1	Select appropriate device or equipment and setting to obtain required measurement
		2.2	Make appropriate connections to obtain required measurement using safe work practices
		2.3	Obtain readings and correctly interpret and make conversion into the required units of measurement, as necessary
3	Maintain electro devices	3.1	Undertake routine care and storage of devices to manufacturer's specifications or SOPs

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

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

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

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Appropriate device or equipment includes one (1) or more of the following:

- analogue/digital multimeters
- clip-on meter
- oscilloscopes
- potentiometers

Routine care includes the following:

- zero and linear adjustments, inspection, check for serviceability and safe operation

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM12002 Perform electrical/electronic measurement

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting measurement requirements from specifications, including sketches and job instructions, schematics, diagrams and technical manuals
- selecting appropriate measuring device to achieve the required outcome
- obtaining measurements by making appropriate connections in a safe and effective manner, interpreting results and recording measurements, as required
- storing and maintaining measuring devices, including undertaking routine care, according to manufacturer's specifications or SOPs.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- terminology and concepts relating to electrical/electronic measurement
- selection of different measuring devices for particular applications within the scope of this unit
- specifications of selected electro-measuring devices
- application of the settings on each electro-measuring device
- procedures for obtaining electrical/electronic measurements
- procedures for connecting electro-measuring devices to circuitry
- correct scale for each setting on the electro-measuring device
- scale factor to be applied to readings taken from the electro-measuring device
- units applying to electrical and electronic measurements
- precautions to be observed when using measuring devices
- loading effect of meters on a circuit
- maintenance and storage requirements for a range of electro-measuring devices.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing electrical/electronic measurement at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications
- 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.

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