



Australian Government

MEM30027 Prepare basic programs for programmable logic controllers

Release: 1

MEM30027 Prepare basic programs for programmable logic controllers

Modification History

Release 1. Supersedes and is equivalent to MEM30027A Prepare basic programs for programmable logic controllers.

Application

This unit of competency defines the skills and knowledge required to write, test, edit and monitor programs using a program loader.

The unit applies to engineering or related activities and is suitable for people giving technical support in manufacturing or engineering operations and those pursuing technical qualifications and careers at paraprofessional or technician level. All work is carried out under supervision.

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

Competency Field

Engineering technician

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Write and test basic programs using a program loader	1.1 Follow standard operating procedure (SOPs) and comply with work health and safety (WHS) requirements at all times 1.2 Write programs in response to workplace needs 1.3 Follow device procedures to load programs into a programmable logic controller 1.4 Verify and test programs and their operation with assistance from supervisor
2. Edit and monitor basic programs using a program loader	2.1 Use the monitoring function to verify circuit conditions and check the current values of timers and counters 2.2 Use editing features to make minor program changes

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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.

Programs include:

- series elements
- parallel elements
- combination series parallel elements
- basic timers and counters.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM30027A Prepare basic programs for programmable logic controllers.

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 MEM30027 Prepare basic programs for programmable logic controllers

Modification History

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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 and include:

- writing and testing basic programs using a program loader on at least two occasions
- editing and monitoring basic programs using a program loader.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

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:

- hazards and control measures associated with preparing basic programs for programmable logic controllers (PLC) including housekeeping
- safe work practices and procedures
- general aspects of programmable controllers including:
 - basic PLC operation:
 - definitions
 - terminology
 - block diagrams
 - scan cycle
 - basic programming rules including:
 - addressing for I/O
 - halt
 - run
- programming using a program loader including:
 - flowcharts and steps to use when programming
 - clearing of memory
 - ladder format
- Boolean, mnemonic and statement list format including:
 - series circuits

- parallel circuits
- latching circuits
- stack register operation
- combination series and parallel circuits
- inversion elements
- timers
- counters:
 - monitoring of discrete I/O and timer/counter values
 - editing including insertion and deletion of elements
- connection of discrete input and output devices to a PLC.
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Assessment Conditions

- Assessors must:
 - have vocational competency in preparing basic programs for programmable logic controllers 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 that 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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