

Title	Demonstrate and apply knowledge of A/D and D/A conversion		
Level	3	Credits	3

Purpose	<p>This unit standard covers the principals and application of analogue to digital and digital to analogue conversion.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> – demonstrate knowledge of A/D and D/A converters; – demonstrate knowledge of A/D and D/A conversion; and – use A/D and D/A converters in a practical application.
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Classification	Electronic Engineering > Core Electronics
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Available grade	Achieved
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Guidance Information

- 1 This unit standard has been developed for off-job training and assessment.
- 2 Definitions
A/D – analogue to digital.
ADC – analogue digital converter.
D/A – digital to analogue.
Industry practice – practice used and recommended by organisations involved in the electrotechnology industry.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of A/D and D/A converters.

Performance criteria

- 1.1 Terms associated with A/D and D/A converters are explained.

Range	may include but are not limited to – D/A conversion, A/D conversion, ADC, flash, successive approximation, dual slope, resolution, quantisation error, conversion time, clock pulse, linearity, delay, output pulse train, sampling, zero cross error, oversampling, bit, filter coefficient, multiplier, conversion laws; evidence of fifteen required.
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- 1.2 A/D and D/A converter types are identified from schematic diagrams.
Range evidence of four A/D and four D/A converters required.
- 1.3 A/D and D/A converter applications are described.
Range evidence of four A/D and four D/A applications required.
- 1.4 Technical differences between four types of A/D converters and four types of D/A converters are identified and described.

Outcome 2

Demonstrate knowledge of A/D and D/A conversion.

Performance criteria

- 2.1 A/D conversion is explained with the aid of diagrams.
Range may include but is not limited to – characteristics, sample and hold, conversion time, clock, sampling, cut-off frequency, multiplier, accumulator, conversion laws; evidence of seven required.
- 2.2 D/A conversion is explained with the aid of diagrams.
Range may include but is not limited to – converter characteristics, conversion time, clock, sampling, cut-off frequency, multiplier, conversion laws; evidence of five required.

Outcome 3

Use A/D and D/A converters in a practical application.

Performance criteria

- 3.1 A/D and D/A converters are applied to a given specification in accordance with industry practice.
Range evidence of one A/D converter and one D/A converter required.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	19 May 2008	31 December 2024
Review	2	25 May 2023	31 December 2024

Consent and Moderation Requirements (CMR) reference	0003
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

This unit standard is expiring