

Title	Demonstrate and apply knowledge of electronic configurable instruments and loops used in industry		
Level	4	Credits	3

Purpose	People credited with this unit standard are able to: <ul style="list-style-type: none"> – demonstrate knowledge of electronic configurable instruments used in industry; and – configure industrial instruments and demonstrate knowledge of the requirements for calibration and trim adjustments.
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Classification	Industrial Measurement and Control > Industrial Measurement and Control - Theory
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Available grade	Achieved
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Guidance Information

- 1 Definitions
HART – highway addressable remote transducer protocol.
RTD – resistance temperature detector.
- 2 This unit standard can include manufacturer specific protocols and a range of microprocessor-based configurable instruments.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of electronic configurable instruments used in industry.

Performance criteria

- 1.1 Describe, with the aid of a sketch, electronic configurable systems.

Range	may include but is not limited to – field device, hand-held communicator, modem and computer.
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- 1.2 Describe communication protocols utilised in electronic configurable instruments.

Range	may include but is not limited to – HART, foundation field bus, other manufacturers' standards.
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- 1.3 Identify advantages and disadvantages of electronic configurable instruments and compare to standard analogue 4-20 mA.
- Range remote communications, high accuracy, maintenance documentation, diagnostics, remote re-ranging.
- 1.4 Describe the effects of calibration, configuration, characterising, and re-ranging on electronic configurable instruments.

Outcome 2

Configure industrial instruments and demonstrate knowledge of the requirements for calibration and trim adjustments.

Range may include but is not limited to – transmitters, interface modules, controllers; evidence of one is required.

Performance criteria

- 2.1 Use an electronic configurable transmitter interface unit to configure the engineering units and range settings for the transmitter.
- 2.2 Select test equipment to match the accuracy and range of device to be tested.
- Range may include but is not limited to – deadweight, digital pressure calibrator, comparator, thermocouple or RTD calibrator, flow tube simulator, dedicated programming interface.
- 2.3 Explain the requirements for re-calibration of electronic configurable instruments.
- Range may include but is not limited to – calibration source, accuracy, performance, timing, manufacturers' instructions.
- 2.4 Identify types and causes of typical errors found in electronic configurable instruments.
- Range may include but is not limited to – alignment of instrument, calibration standard accuracy.
- 2.5 Explain field zero (trim adjustment) procedures.
- Range may include but is not limited to – mounting position of the transmitter, offset zero adjustment, alignment of the engineering units and measured unit scale.
- 2.6 Document configuration and test results in accordance with industry requirements.

Replacement information	This unit standard replaced unit standard 2650 and unit standard 2652.
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Planned review date	31 December 2021
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	19 May 2008	31 December 2019
Review	2	28 November 2013	N/A
Rollover	3	28 June 2018	N/A

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>.

Comments on this unit standard

Please contact The Skills Organisation reviewcomments@skills.org.nz if you wish to suggest changes to the content of this unit standard.